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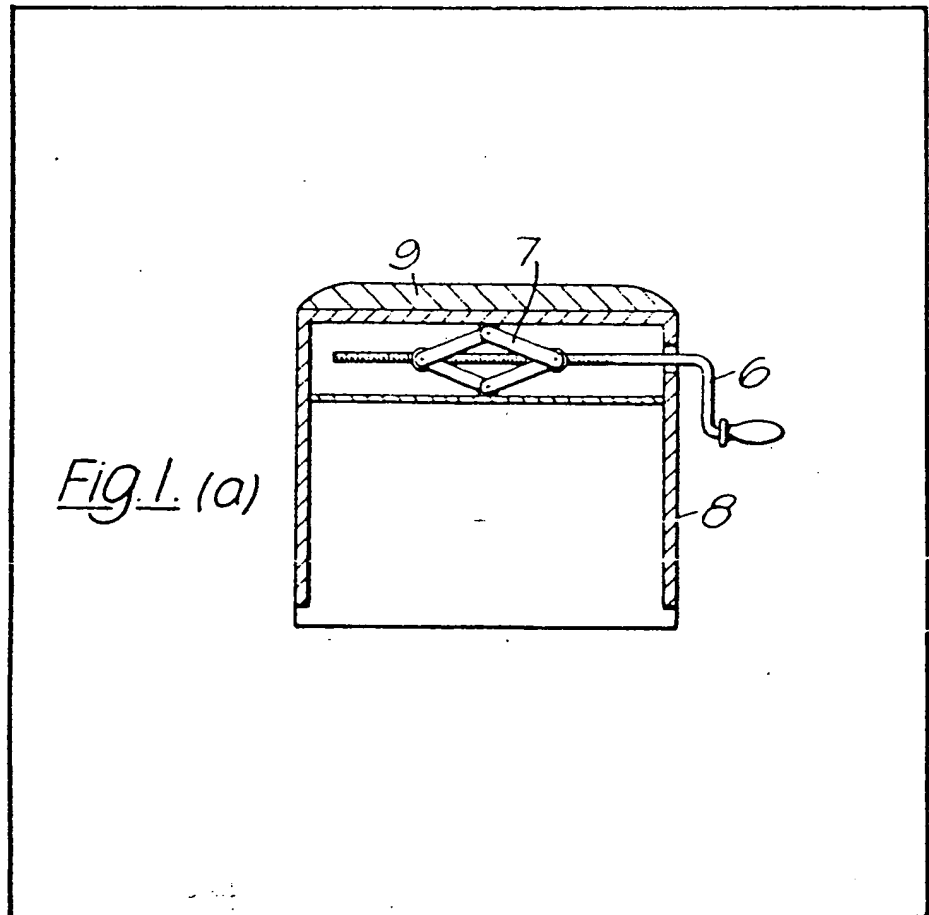
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(54) Anti-Sore Bed

(57) An anti-sore bed to relieve pressure exerted on a patient is provided comprising a plurality of segments (2, 3) which are divided into

two sets, each set being comprised of alternate segments (2 or 3) and the two sets being movable with respect to one another so that the patient (5) may be supported alternately on each set of segments (2, 3).



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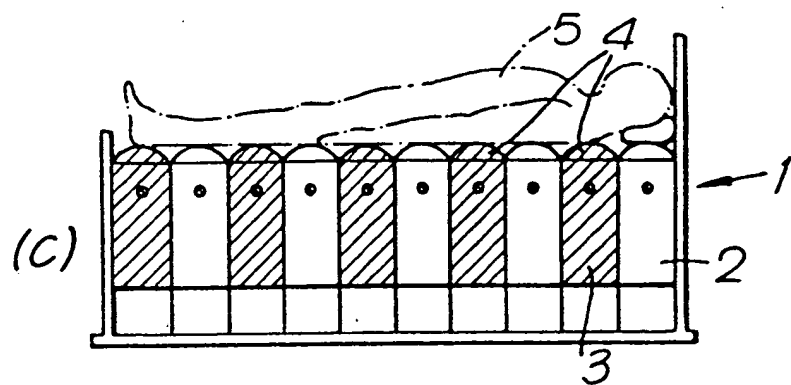
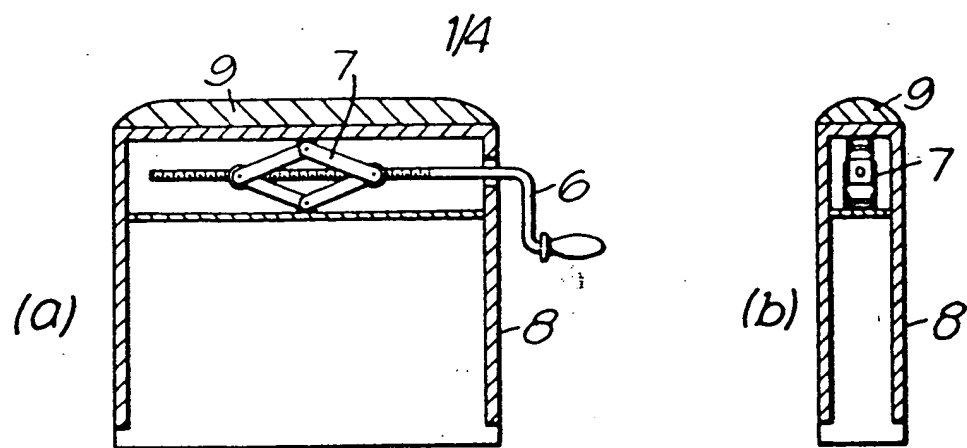
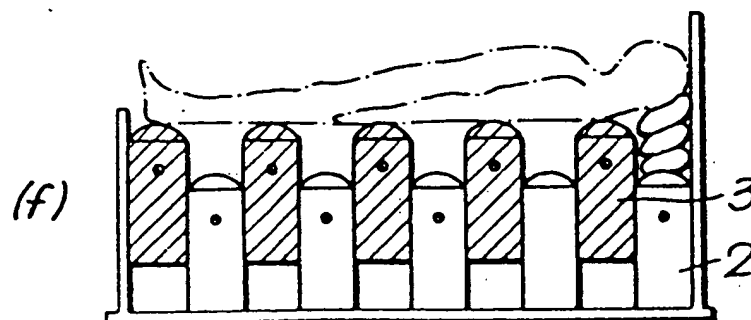
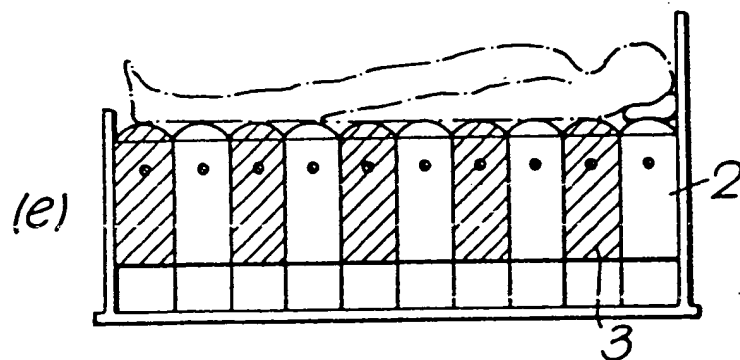
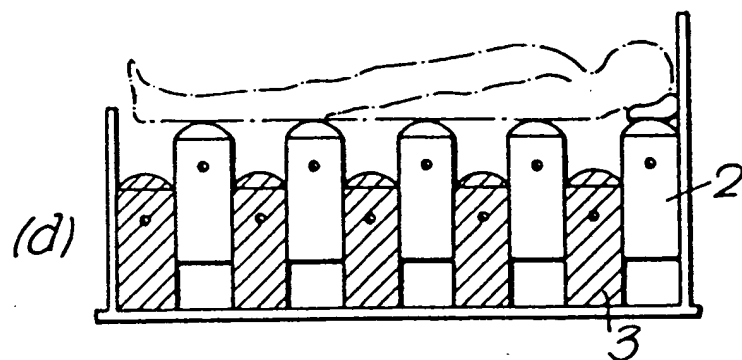


Fig. 1.



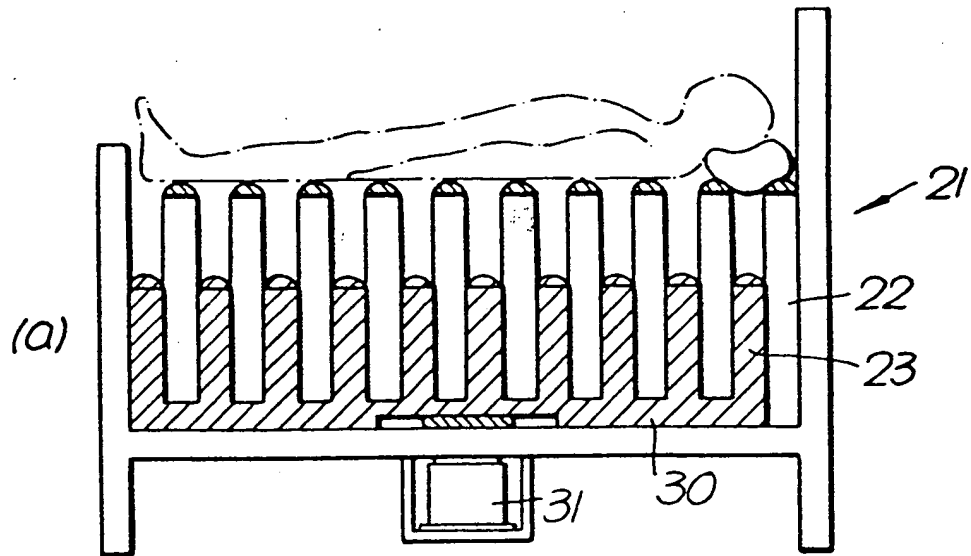
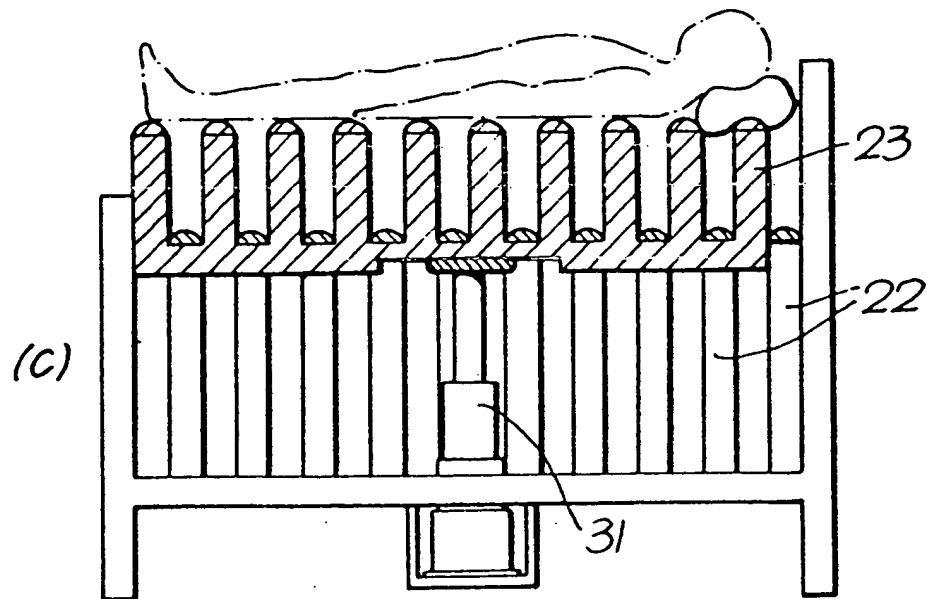
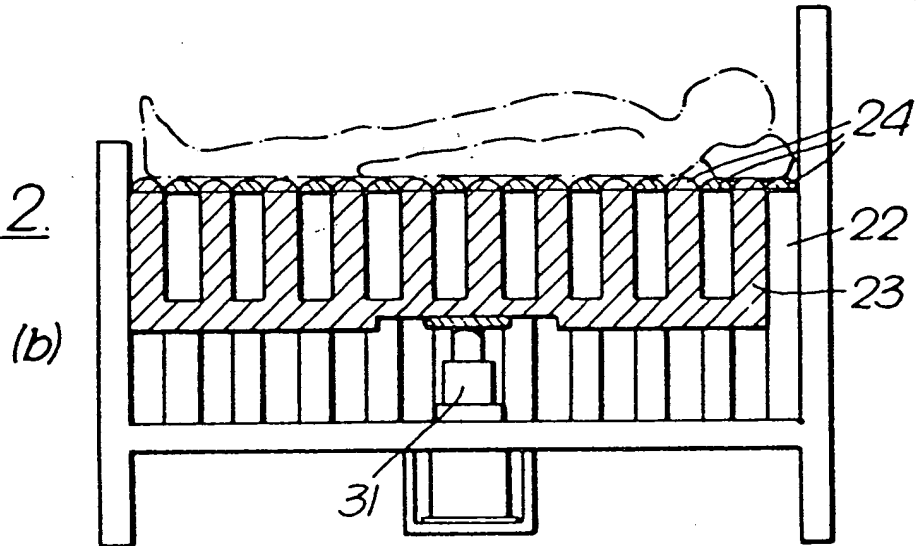


Fig. 2



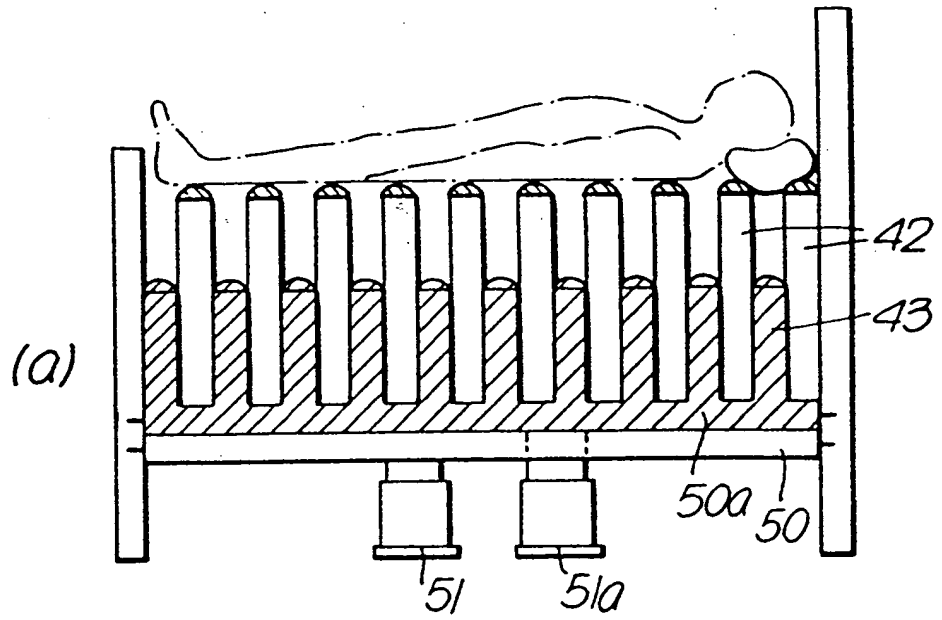
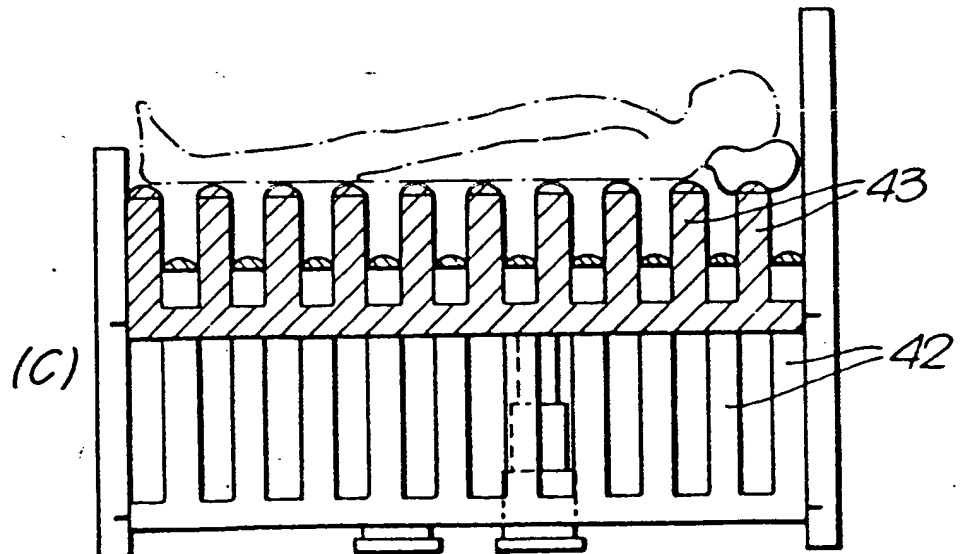
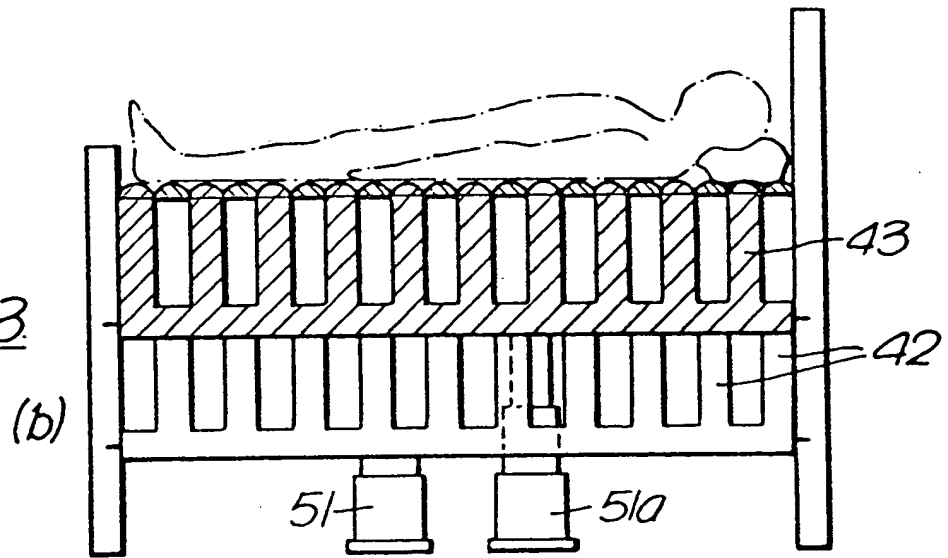


Fig. 3



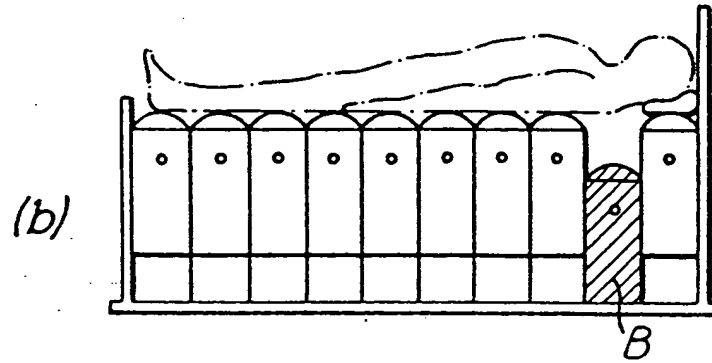
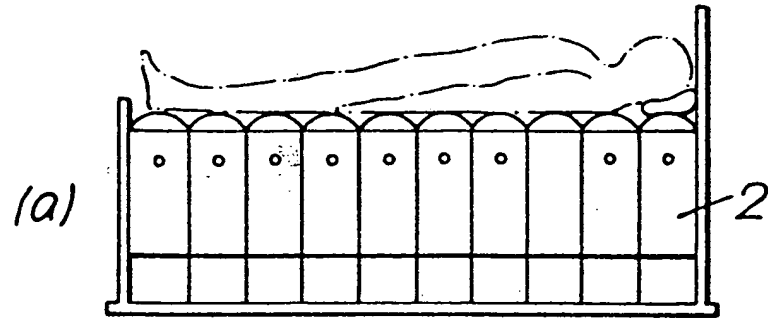
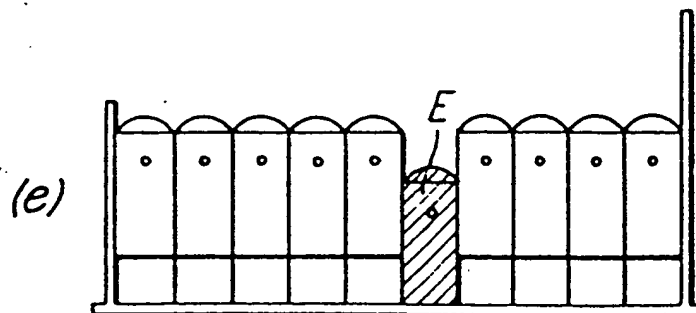
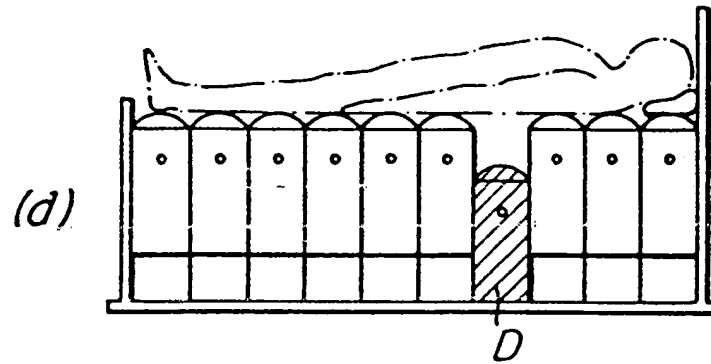
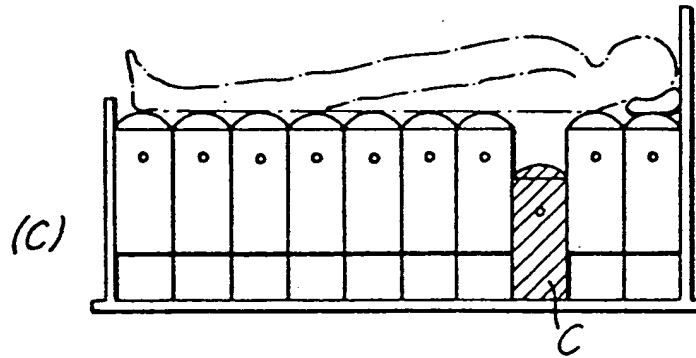


Fig. 4



SPECIFICATION **Anti-Sore Bed**

The present invention relates to an anti-sore bed.

According to the present invention, there is provided an anti-sore bed comprising a plurality of segments each of which has a surface for supporting a patient, and moving means for moving at least one segment with respect to another segment or segments so that the pressure exerted on the patient by the or each said one segment is relieved.

Preferably each segment is arranged to be raised and lowered by the moving means.

In a preferred embodiment of the present invention, the segments are divided into two sets, each set being comprised of alternate segments, the two sets being movable with respect to one another so that the patient may be supported alternately on each set of segments, thereby changing the points at which the patient is supported, and hence relieving the pressure exerted on the patient at those points.

Preferably one of the sets of segments is fixed, and the other set can be raised or lowered relative thereto.

In an alternative embodiment, each segment is movable independently of the or each other segment.

Jacking means may be provided so that the or each movable segment may be moved manually. Alternatively, electrically driven means may be supplied for moving the or each movable segment.

The electrically driven means may include a self timer so that the points at which the patient is supported can be changed automatically at predetermined time intervals.

The present invention will now be described, merely by way of example, with reference to the accompanying drawings, in which:—

Figures 1(a) to 1(f) show one embodiment of an anti-sore bed according to the present invention, and one method of operation thereof,

Figures 2(a) to 2(c) show a second embodiment of an anti-sore bed according to the present invention, and illustrate the method of operation thereof,

Figures 3(a) to 3(c) show a third embodiment of an anti-sore bed according to the present invention, and illustrate the method of operation thereof, and

Figures 4(a) to 4(e) show an alternative method of operation of the anti-sore bed of Figure 1.

Terms such as "upper" and "lower" when used in the description below are to be understood to refer to directions as seen in the accompanying drawings.

Figures 1(a) to 1(e) show a first embodiment of an anti-sore bed according to the present invention. An anti-sore bed 1 comprises a plurality of segments 2, 3 which are divided into two sets, each set being comprised of alternate

segments 2 or 3 and each segment 2, 3 having a surface 4 for supporting a patient 5. Various combinations of the surfaces 4 support the patient 5 at spaced apart points. Each of the segments 2, 3 can be raised or lowered, for example, by means of a handle 6 (Figure 1a) connected to a jacking mechanism 7, there being one jacking mechanism 7 associated with each segment 2, 3. The preferred number of segments 2, 3, is between ten and twenty, the bed 1 of Figure 1 having ten segments 2, 3.

Figures 1a and 1b show a segment 2, 3 in side and end sectional view respectively. Each segment 2, 3 comprises a body 8 having a piece of bed mattress 9 fixed thereto. Pieces of bed linen (not shown) are placed on top of the pieces of bed mattress 9.

The purpose of the bed 1 is to prevent bed sores from forming on the patient by periodically changing the location of the points at which the bed 1 supports the patient. This is done by selectively moving the segments 2, 3 up and down so that the combination of surfaces 4 which support the patient 5 is periodically changed.

Figures 1c to 1f show one method of operation of the anti-sore bed 1. In Figure 1c, all the segments 2, 3 are aligned, and the patient is supported by every one of the surfaces 4. In Figure 1d, the segments 3 have been moved down so that the patient rests only on the segments 2. This position is held for a desired length of time (the length of which will be mentioned later) before the segments 2 are raised to their original position (Figure 1e) and the segments 3 are lowered (Figure 1f), thus changing the points of support on the patient 5. The procedure is then repeated. By repetition of this method, the support points on the patient, which act as pressure points, can be continuously alternated, thus preventing bed sores from forming. If bed sores are already present, then the use of a bed according to the present invention allows them to heal.

It should be noted that the above method of operation of the bed 1 does not alter the patient's position. Such a method can therefore be used to treat patients already being treated by traction apparatus.

Figure 2 shows an alternative embodiment of an anti-sore bed of the present invention. As in the embodiment of Figure 1, a bed 21 is provided with segments 22 and 23 which are generally similar to segments 2 and 3 and will not therefore be described again in detail. In this embodiment, however, the segments 22 are fixed and the segments 23 are arranged to be vertically movable therebetween. The segments 23 are all mounted on a common frame 30, which is acted upon by a piston assembly 31. Figures 2a to 2c illustrate the method of operation of this embodiment.

In Figure 2a, the patient is supported only by the segments 22, the segments 23 being in a lowered position, and not, therefore, contacting the patient.

Figur 2b shows the top surfaces 24 of the segments 23 brought up by the piston assembly 31 to a level with those of the segments 22, so that at this point the patient is supported by both the segments 22 and 23. Continued operation of the piston assembly 31 then pushes the top surfaces 24 of the segments 23 above the level of the top of the segments 22 (Figure 2c) thereby transferring the patient from the segments 22 onto the segments 23, and thus altering the points at which the patient is supported. In the embodiment of Figure 2, however, it can be seen that alternation between the support on the segments 22 and support on the segments 23 causes the patient to move up and down with the segments 23. The maximum vertical displacement of the patient is 15 centimetres, and this movement causes no ill-effect to the patient. The embodiment of Figure 2 is therefore suitable for patients not being treated by traction apparatus, and for cases of traumatic paraplegia or prolonged coma.

In Figure 3 there is shown a further embodiment of the present invention. In this case each set of segments 42, 43 is connected to a common frame 50, 50a respectively. The frames 50 and 50a are respectively acted upon by piston assemblies 51 and 51a. Figures 3a to 3c illustrate the operation of this embodiment. Initially the patient is supported only by the segments 42 (Figure 3a), the segments 43 being in a lowered position out of contact with the patient. The piston assembly 51a is then operated to push the group of segments 43 up to the level of the patient (Figure 3b) so that both sets of segments 42 and 43 are at this point supporting the patient. Finally the set of segments 42 is lowered (Figure 3c) by operating the piston assembly 51 so that the patient is supported only by the segments 43. Continued operation of this and the reverse cycle therefore enables the patient to be supported alternately on the sets of segments 42 and 43 without the patient being moved. This embodiment is particularly suitable for patients being treated with traction apparatus or cases of bilateral major fractures of the lower limbs.

Figure 4 illustrates a further method of operation of the anti-sore bed shown in Figure 1. Initially all the segments 2 are at the same level, and each segment therefore helps to support the patient (Figure 4a). Segment B (Figure 4b) is then lowered by itself so as to relieve the pressure acting on the patient from contact with that segment, and the relief from pressure which the patient feels may be helped by gentle massage. After 3 minutes or more, segment B is raised to its original position so as once again to help support the patient. The whole process is then repeated with segment C (Figure 4c), followed by segments D and E (Figures 4d and 4e), and so on along the bed until all the pressure points on the patient have been relieved. The whole process is then repeated, starting once again with segment B. In this way, no pressure point is allowed to be used continuously, and bed sores are therefore

prevented, and/or treated.

The length of time allowed to elapse before repeating the various cycles described above can vary from half an hour to two hours, depending on the age of the patient, his body build, and the presence of any disease such as diabetes or malnutrition. The better the condition of the patient, the longer the time period between cycles.

Movement of the various segments during the cycles can be done either manually or by providing an electrically driven means operated by push buttons. Moreover, a self timer may be incorporated in the electrically driven means so that the segments move automatically at pre-set time intervals, in which case no operators are required to operate the bed.

It will be seen that the anti-sore bed of the present invention offers several advantages over conventional beds, in that the bed linen can be changed without moving the patient; X-ray films can be taken without moving the patient; and the patient can be massaged or bathed without the need to move him.

90 Claims

1. An anti-sore bed comprising a plurality of segments each of which has a surface for supporting a patient, and moving means for moving at least one segment with respect to another segment or segments so that the pressure exerted on the patient by the or each said one segment is relieved.

2. A bed as claimed in claim 1 in which each segment is arranged to be raised and lowered by the moving means.

3. A bed as claimed in claim 1 or 2 in which the segments are divided into two sets, each set being comprised of alternate segments, the two sets being movable with respect to one another so that the patient may be supported alternately on each set of segments, thereby changing the points at which the patient is supported, and hence relieving the pressure exerted on the patient at those points.

4. A bed as claimed in claim 3 in which one of the sets of segments is fixed, and the other set can be raised or lowered relative thereto.

5. A bed as claimed in claim 2 in which each segment is movable independently of the or each other segment.

6. A bed as claimed in any of claims 1—5 in which jacking means are provided so that the or each movable segment may be moved manually.

7. A bed as claimed in any of claims 1—5 in which electrically driven means are supplied for moving the or each movable segment.

8. A bed as claimed in claim 7 in which the electrically driven means includes a self timer so that the points at which the patient is supported can be changed automatically at predetermined time intervals.

9. An anti-sore bed substantially as hereinbefore described with reference to and as shown in Figures 1 and 4, or in Figure 2 or in

Figure 3 of the accompanying drawings.

10. The principle of bed segmentation.

11. The principle of alternation of segments.

12. The four techniques of segment

5 manipulation:

a. The alternate relief technique using Model A.

b. The alternate relief technique using Model B
(1).

c. The alternate relief technique using Model B
10 (2).

d. The segmental relief technique using Model
A.

13. The modes of manipulations:

a. Manually

15 b. Using electric power but without self timer.

c. Using electric power with a self timer.

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